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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/298,926	04/26/1999	HELMUT REMBOLD	R.33554	2590

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EXAMINER	
MILLER, CARL STUART	
ART UNIT	PAPER NUMBER
3747	

DATE MAILED: 01/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/298,926	REMBOLD
Examiner	**Group Art Unit**
Miller	3747

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☒ Responsive to communication(s) filed on 10/5/01.

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-25 is/are pending in the application.

Of the above claim(s) 21-22 and 25 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-13, 16-19 and 23 is/are rejected.

☐ Claim(s) 14, 15, 20, 24 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of References Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

Claims 21-22 and 25 remain withdrawn from examination as being drawn to the non-elected species of Figure 1. The examiner has considered applicant's arguments with regard to the restriction requirement and has not found them to be convincing. In particular, a review of the specification shows that there is no mention of the features of the throttle in the description of Figure 2 and there is no reason to believe that there is any restriction of the flow line when the valve of Figure 2 is open. Additional comments with regard to this issue appear below.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 7, 17, 18, 19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Fujino.

Ishida teaches the serially arranged pumps of the claims and the first pump (46) has a variable output depending upon engine parameter inputs. While the examiner feels that it is clear that in the low load range (when only the first pump feeds the injector) the ECU varies the pressure in the accumulator, Fujino has been applied to teach a system of the prior art without the second pump which clearly varies the accumulator pressure according to the claimed engine inputs.

It would have been obvious to continuously vary the pump output to the accumulator in Ishida in the low load range as taught by Fujino because exact fuel pressures are needed in systems to meet fuel economy and emissions standards.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida and Fujino as applied to claim 1 above, and further in view of Learman.

Learman considers injector on time in order to set the pressure of fuel in an accumulator and thus the total fuel quantity to the engine. Since the period of injection is always related to the total quantity it would always be necessary to consider this factor in a variable pressure fuel system.

Claims 2-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida and Fujino as applied to claim 1 above, and further in view of Yoshiume.

Yoshiume teaches a fuel pump which uses a variable speed motor to increase fuel output and increases the pump speed at starting. The system also considers fuel temperatures and since high temperatures mean less viscosity it is always necessary to pump a greater volume at these temperatures to keep quantity the same.

It would have been obvious to control the accumulator pressure of Ishida as taught by Yoshiume because the use of electric pumps ~~in suppressor~~ to produce variable pressure ranges was common in the art.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida, Fujino and Yoshiume as applied to claim 2 above, and further in view of Cummins.

Cummins teaches the well known use of resistors in series with an electric pump as part of the pump drive circuit. Since such resistors are conventional it would have been obvious to include them in the drive circuit of the electric pump.

Claims 14, 15, 20 and 24 remain objected to as being dependent upon a rejected base claim, but would be allowable if rewritten I independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed October 5, 2001 have been fully considered but they are not persuasive.

In particular, the examiner has noted applicant's arguments with regard to Claims 21 and 22 and still cannot see how the valve has an intrinsic restriction value. There are several possible valves that can meet Claim 19 language which would have no restriction properties when open.

More importantly, the rejection of the Claims under Ishida and Fujima was thought to be clear with regard to the first and second pumps of Ishida. In particular, only pump (46) is responsive to engine parameters and pump 52 is simply a feed pump, probably with rpm dependent output. Since the rejection required engine parameters inputs to the first pump, (46) had to be that pump. The examiner apologizes if this was unclear, but the applicant has addressed the correct interpretation of the reference regardless.

In addressing Ishida applicant states that piston 100 is not a really a pump. Such pumps are, in fact, in almost every diesel engine in existence and <u>are</u> considered high pressure **pumps**.

The claims do not require a particular metering by the first pump in order to feed the second pump however even this would be true to some extent in Ishida. The accumulator pressure required by the ECU will be a function of engine parameters and this will greatly effect the injection which occurs directly from the rail (36) and, to some extent, the pressure from the high pressure pump (100) which is a pressure intensifier (normally called the intensifier piston). If the pump (100) pressure begins higher it will end higher.

Finally, applicant is mistaken about the first pump (46) not reading on Claim 1. This claim states that the pump "delivers the fuel...with a delivery capacity that is changed as a function of an operating condition of the engine". Ishida's spill is upstream of check valve (56) and this will produce a delivery capacity which varies in response to the engine's operating conditions. Obviously, the use of a variable speed electric pump and several other pumping methods could also be used to produce such a variable output and several other references have been used in the rejection when a specific type of pump was claimed. Claim 1, however, does not claim a particular type of pump.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Carl S. Miller
Primary Examiner

C. Miller

December 31, 2001